

Muscle Tissue

Muscle is a type of connective tissue which has the ability to contract (shorten) and relax (lengthen)
Powerful movements are created by the contractions of the muscle tissue

There are three types of muscles

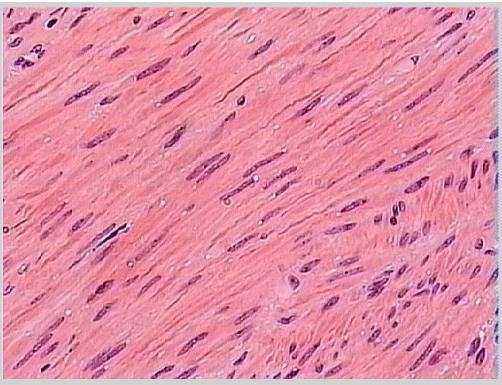
- a) smooth muscle
- b) cardiac muscle
- c) skeletal muscle

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Smooth Muscle

- called involuntary muscles (controlled by the Autonomic Nervous System ANS)
- all internal organs of the body (except the heart) are made of smooth muscle (ie. digestive, reproductive organs etc.)
- about 30 different smooth muscles control our internal organs can provide slow continuous contractions for the organs to function (ie. esophagus- creates a slow escalator-like movement of food or drink towards the stomach)

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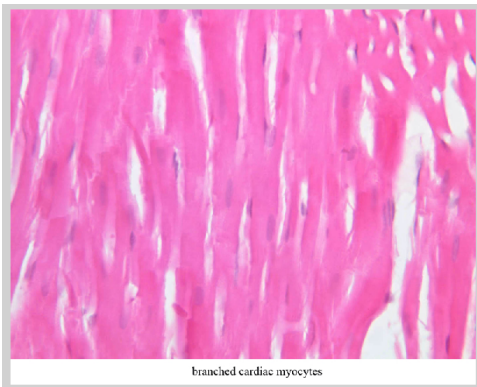
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Cardiac Muscle

- the heart muscle
- a special type of involuntary muscle (controlled by the ANS)
- has the ability to contract quickly for long periods of time (virtually no complete rest time, only changes in contraction rates)

striated muscles in multiple
directions

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Skeletal Muscle

- under voluntary control (controlled by the PNS)
- over 620 muscles control the body movements
- characterized by striations (bands which move closer to each other as the muscle contracts)
- muscles join two different bones, when it contracts it brings the bones closer together, changing the joint angle
- are responsible for every body movement
- are able to supply quick powerful contractions but are limited in the time span for contractions
- Lactic acid (skeletal muscle waste product) is released as a result of long or many short contractions
- develops tension
- maintains upright body posture
- muscle pairs are responsible for complex body movement
- absorbs shock
- attached to bone by tendons to form a musculotendinous unit

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Basic Properties of the Musculotendinous Unit

- extensibility: ability to be stretched
- elasticity: ability to return to normal length
- irritability: ability to respond to stimulus
- contractility: ability to contract

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